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EXAMINER

RUBY, TRAVIS C

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings of Figure 5 A-5C were received on 1/8/2010. These drawings are acceptable.
3. **The drawings (Figures 1-4) are objected to because the images are of poor quality which renders it difficult to see all of the details of the drawings.** Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “convex polyhedron” of Claim 1 and 25 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

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Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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6. **Claims 1 and 25 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation in Claim 1 and 25 of "located within a volume defined by a convex polyhedron, said volume lying entirely inside said housing" is new matter which was not previously described in the specification. In addition, none of the drawings show or indicate a "convex polyhedron" located within the housing unit.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. **Claims 1, 25, and 26 are rejected under 35 U.S.C. 112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claim 1 line 13 and Claim 25 line 9 recites a "volume defined by a convex polyhedron". A convex polyhedron is not a definitive shape since a polyhedron can have an infinite number of shapes. Thus it is unclear as to what shape the limitation is attempting to claim. For examination purposes the examiner will assume an oval shape as complying with the "convex polyhedron" limitation.

10. Claim 26 recites "one first heat exchanging device comprises first and second heat exchanging devices" in lines 1-2. It is unclear as to how this second heat exchanging device relates to the previously recited "second heat exchanging device" in line 6 of Claim 25. In

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addition, it is not clear as to how the first heat exchanging device can comprise both the first and second heat exchanging devices at the same time.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1, 5, 7-12, 14-15, 17-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (US2096967) in view of Alber et al (US2003/0217833A1).

(Note: Johnson reference does not have column numbers labeled, Column 3 is the left column on Page 2 and subsequent columns are incrementally referred to in the order presented)

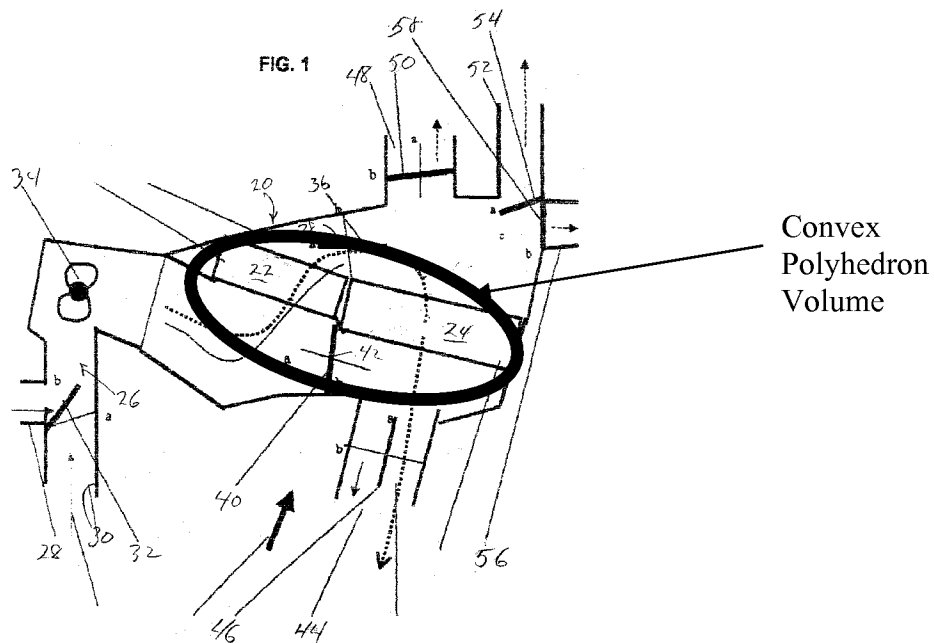
Re Claim 1. Johnson teaches a constructional unit (Figure 1) for a heat exchanging device, with at least one housing in which a gaseous medium is routed at least partially along a predetermined path (refs 23 and 26) (Column 3 lines 33-38), with an inlet device (ref 30) for the gaseous medium (Column 3 lines 42-50), with at least one first heat exchanging device (ref 18, Column 3 line 67 to Column 4 line 2), with at least one second heat exchanging device (ref 100, Column 4 line 70 to Column 5 line 3), with at least one first regulating device (ref 37) which at least partially influences the direction of flow of the gaseous medium and which can be set in at least two different positions (Column 3 lines 52-62), and with an outlet device (ref 40) for the gaseous medium (Column 4 lines 34-45), wherein, in at least one first position of the first

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regulating device, essentially no fractions of the gaseous medium are routed through the first heat exchanging device (Column 3 lines 52-62, Figure 1 illustrates that the gate 37 can block air flow to either of the two flow passages); and in at least one second position of the first regulating device, substantially no fractions of the gaseous medium are routed through the second heat exchanging device (Column 3 lines 52-62, Figure 1 illustrates that the gate 37 can block air flow to either of the two flow passages).

Johnson fails to specifically teach that said at least one first heat exchanging device and said as least one second heat exchanging device are both located within a volume defined by a convex polyhedron, said volume lying entirely inside said housing.

Alber et al teach said at least one first heat exchanging device (ref 22) and said as least one second heat exchanging device (ref 24) are both located within a volume defined by a convex polyhedron, said volume lying entirely inside said housing (ref 20) (See annotated Figure 1 below; Paragraph 35). In view of Alber et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of invention to locate the two heat exchangers in the same area since it would allow for a reduced overall size of the housing, which would reduce the amount of material needed to create the constructional unit.



Re Claim 5. The constructional unit as claimed in claim 1, wherein the first regulating device can be set continuously between the first position and the second position (Column 3 lines 52-62, Column 5 lines 9-38).

Re Claim 7. The constructional unit as claimed in claim 1, wherein at least one portion of the first regulating device (ref 37), in at least one position, bears against at least one portion of the housing (Figure 1, Column 3 lines 52-62, Column 5 lines 9-38).

Re Claim 8. The constructional unit as claimed in claim 1, wherein the first regulating device is accommodated in a first subspace of the housing (ref 30), the first subspace of the housing being arranged upstream of the first and the second heat exchanging device in the direction of flow of the gaseous medium (Figure 1, Column 3 lines 42-50).

Re Claim 9. The constructional unit as claimed in claim 1, wherein a second subspace (ref 40) of the housing is provided, which is arranged downstream of the first and the second heat exchanging device in the direction of flow of the gaseous medium (Figure 1, Column 4 lines 34-45).

Re Claim 10. The constructional unit as claimed in claim 1, wherein at least a partial intermixing of the gaseous medium passing through the first and the second heat exchanging device takes place in the second subspace (Figure 1, Column 4 lines 34-45, Column 5 lines 9-38).

Re Claim 11. The constructional unit as claimed in claim 1, wherein at least one deflection device (ref 50) for the gaseous medium is provided in the second subspace (Figure 1, Column 4 lines 34-45, Column 5 lines 9-38).

Re Claim 12. The constructional unit as claimed in claim 1, wherein the first heat exchanging device and the second heat exchanging device are arranged substantially parallel to one another (Figure 1 illustrates that the heat exchangers are parallel).

Re Claim 14. The constructional unit as claimed in claim 1, wherein a third heat exchanging device (ref 42) is provided (Column 4 lines 17-23).

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Re Claim 15. The constructional unit as claimed in claim 1, wherein at least one heat exchanging device (ref 100) has a multiplicity of throughflow devices for a refrigerant (4 line 70 to Column 5 line 3).

Re Claim 17. The constructional unit as claimed in claim 1, wherein the third heat exchanging device is a heating device selected from a group of heating devices which contains CO₂ heat pumps, heatings utilizing exhaust gas heat, fuel heatings, auxiliary heatings, and electrical heatings (ref 42, Column 4 lines 17-23).

Re Claim 18. The constructional unit as claimed in claim 1, wherein the third heat exchanging device has a cross-sectional area which is reduced with respect to that of the first heat exchanging device (ref 42 in Figure 1 is smaller than ref 18, Column 4 lines 17-23).

Re Claim 19. The constructional unit as claimed in claim 1, wherein the first heat exchanging device is a heating device (ref 18, Column 3 line 67 to Column 4 line 2).

Re Claim 20. The constructional unit as claimed in claim 1, wherein the third heat exchanging device is arranged downstream of the first heat exchanging device in the direction of flow of the gaseous medium (ref 42 in Figure 1, Column 4 lines 17-23).

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Re Claim 21. The constructional unit as claimed in claim 1, wherein a multiplicity of outlet devices for the gaseous medium are provided (Figure 1 ref 40 and 49, Column 4 lines 34-41).

Re Claim 22. The constructional unit as claimed in claim 1, wherein at least one outlet device has a substantially rectangular cross section (Figure 1 shows that ref 40 and 49 are rectangular, Column 4 lines 34-41).

Re Claim 23. The constructional unit as claimed in claim 1, wherein at least one outlet device has a second regulating device (ref 50) for the emerging gaseous medium (Column 4 lines 34-51).

Re Claim 24. The constructional unit as claimed in claim 1, wherein the constructional unit has, furthermore, a blower device (ref 34, Column 3 lines 47-50).

Re Claim 25. Johnson teaches a constructional unit (Figure 1) for a heat exchanging device comprising:

a housing in which a gaseous medium is routed at least partially along a predetermined path (refs 23 and 26; Column 3 lines 33-38), the housing including an inlet (ref 30) for the gaseous medium and an outlet (ref 40) for the gaseous medium (Column 4 lines 34-50);

at least one first heat exchanging device (ref 18) having a flow path therethrough (Column 3 line 67 to Column 4 line 2);

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at least one second heat exchanging device (ref 100) having a flow path therethrough (Column 4 line 70 to Column 5 line 3);

a movable flap (ref 37) configured to influence a direction of flow of the gaseous medium, said flap being movable between a first position in which flow of the gaseous medium through said at least one first heat exchanging device is substantially blocked and a second position in which flow of the gaseous medium through said at least one second heat exchanging device is substantially blocked (Column 3 lines 52-62, Figure 1 illustrates that the gate 37 can block air flow to either of the two flow passages).

Johnson fails to specifically teach that said at least one first heat exchanging device and said at least one second heat exchanging device are both located within a volume defined by a convex polyhedron, said volume lying entirely inside said housing.

Alber et al teach said at least one first heat exchanging device (ref 22) and said at least one second heat exchanging device (ref 24) are both located within a volume defined by a convex polyhedron, said volume lying entirely inside said housing (ref 20) (See annotated Figure 1 above; Paragraph 35). In view of Alber et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of invention to locate the two heat exchangers in the same area since it would allow for a reduced overall size of the housing, which would reduce the amount of material needed to create the constructional unit.

Re Claim 26. Johnson teaches said at least one first heat exchanging device (ref 18) comprises first (ref 18) and second (ref 42) heat exchanging devices (Column 3 line 67 to Column 4 line 2; Column 4 lines 17-23).

13. Claim 3, 4, 13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (US2096967) in view of Alber et al (US2003/0217833A1) and in further view of Engel (US3807490).

Re Claim 3 & 4. Johnson teaches two heat exchangers (Figure 1) but fails to specifically teach that the first heat exchanging device and the second heat exchanging device are arranged at least partially one above the other and the first heat exchanging device is arranged above the second heat exchanging device. Engel teaches a first heat exchanging device (ref 8) and a second heat exchanging device (ref 7) are arranged at least partially one above the other with the first heat exchanging device arranged above the second heat exchanging device (Figure 1, Column 2 line 65 to Column 3 line 3). In view of Engel's teachings, it would have been obvious to one of ordinary skill in the art to arrange the first heat exchanger above the second heat exchanger in order to reduce the distance between the two since it allows for less coolant piping used in the air conditioning system. It would also have been obvious to one of ordinary skill in the art at the time the invention was made to arrange the first heat exchanger above the second heat exchanger, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

Re Claim 13. Johnson teaches a first heat exchanger but fails to specifically teach at least one heat exchanging device has a predetermined length and a width and depth, said width and depth being less than said length. It would have been an obvious matter of design choice to

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make the width and depth smaller than the length in order to reduce the size of the heat exchanger to be more compact for a vehicle, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1995).

Re Claim 16. Johnson teaches a heat exchanger with throughflow devices (4 line 70 to Column 5 line 3) but fails to specifically teach the throughflow devices have a length which is between 400 mm and 600 mm. It would have been an obvious matter of design choice to make the length between 400mm and 600mm in order to achieve the maximum heat exchange, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1995). It also would have been obvious to one of ordinary skill in the art at the time the invention was made to determine the optimal length range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

14. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (US2096967) in view of Alber et al (US2003/0217833A1) and in further view of Iritani et al (US5299431).

Re Claim 6. Johnson teaches a regulating device (37) in contact with the housing (as seen in Figure 1) but fails to specifically teach at least one portion of the first regulating device,

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in at least one position, bears against at least one portion of the first heat exchanging device.

Iritani et al teaches at least one portion of the first regulating device (ref 159), in at least one position, bears against at least one portion of the first heat exchanging device (ref 207) (Figure 11, Column 18 lines 50-65). In view of Iritani et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of invention to make the regulating device bear against the first heat exchanging device since it ensures that no air is leaked passed the regulating door and that the air flow goes in the direction intended. It increases reliability in the system.

Response to Arguments

15. Applicant's arguments with respect to claims 1-26 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TRAVIS RUBY whose telephone number is (571)270-5760. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frantz Jules or Cheryl Tyler can be reached on 571-272-6681 or 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner, Art Unit 3744

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